Memorandum

To: Wastewater Charges/Sewer SHAREs Work Group

From: Suzanne Coffey, Tim Prince, Carrie Cox, Vyto Kaunelis, Sam Smalley, Eric Rothstein, Maria Sedki, and Bart Foster

Date: October 20, 2020

RE: Recommended Update to the Sewer SHAREs Charge Methodology

We are pleased to report that we, the members of the Sewer SHAREs Think Tank Group, have together developed a recommendation for an update to GLWA's wastewater charge methodology. We ask you for your consideration and support of this recommendation.

Since its inception in 2019, the members of the Think Tank Group held 12 meetings which totaled nearly 30 hours of time to consider changes to the wastewater charge methodology. It required incredibly detailed work and also the commitment of many additional hours outside of meetings to study and have conversations to fully understand technical details and varying perspectives. We were focused on the goal of developing a recommended modification to the methodology that embraced the fundamental GLWA member principles of ***stability and simplicity*** (as validated by Raftelis in 2019) while not losing sight of cost causation.

> *"Minimizing impacts on each Member Partner Community while simplifying the charge methodology was the most important consideration of any proposed change."*[1]

We are pleased to report that we have achieved this goal. What follows is a summary of the methodology, the salient points related to the work, and recommended SHAREs for the next SHARE period.

[1] Raftelis, GLWA Sewer Cost of Service Methodology, December 9, 2019.

PROPOSED CORE METHODOLOGY

		Allocators		
		Average Volume	*Sanitary Volume*	*CSO*
Cost Pools	Water Resource Recovery Facility	50%	50%	
	Conveyance/Collection System	100%		
	Combined Sewer Overflow			100%

Cost Pools

1. Water Resource Recovery Facility, or WRRF, is the regional system's most significant treatment facility, treating dry and wet weather flows.
2. Conveyance, or collection system, is the network of pipes, pumps and other assets that transport flow from the member partners to various elements in the regional system.
3. Combined Sewer Overflow, or CSO, is the collection of regional wet weather facilities whose costs are apportioned 83% to Detroit and 17% to other member partners as previously negotiated and memorialized in legal documents.

Allocators

1. Average volume includes all volume a member partner contributes to the regional system. This reflects both wet and dry weather and is calculated as an average over multiple years. In addition to sanitary flows, it includes flow that comes from rain, snow melt and groundwater infiltration.
2. Sanitary volume is flow from users of the system and is quantified as a high percentage of member partners' winter water use. It does not include flow that comes from rain, snow melt or groundwater infiltration.
3. CSO is consistent with historical legal agreements and allocated 83% to Detroit and 17% to other member partners as previously negotiated and memorialized in legal documents.

STABILITY, OUR #1 CONCERN

- We propose to hold the Sewer SHAREs ***core methodology*** constant for 9 years[2]. The regional system's cost methodology has not changed since the 1970s, however, in the early 2000s, the Sewer SHAREs approach was adopted. The "SHARE" is a fixed percentage of the revenue requirement for each member partner. The SHAREs total up to 100%. Using the core methodology, SHARE calculations are updated with various inputs, such as flow and detailed cost of service values, on a periodic basis.
- Historically ***inputs to the methodology***, which are volumes and the results of detailed cost of service studies, have been updated every 3 to 4 years. We coalesced around continuing to recalculate the SHAREs with updated inputs every 3 years.
- We propose to ***increase the number of years used in the flow average*** to 10 years. Increasing the number of years in the average will inherently stabilize the SHAREs because weather patterns, which can create volatility, will be dampened with more years in the data set. Currently 7 years of data is available for this calculation. Upon the next update to the inputs, 10 years of volume data will be available for averaging.
- This results in a member partner's SHARE remaining constant for 3 years. This is a "SHARE period". During a SHARE period, ***the annual percent change in all member partners' charges will be the same*** and will be equal to the change in the annual revenue requirement.

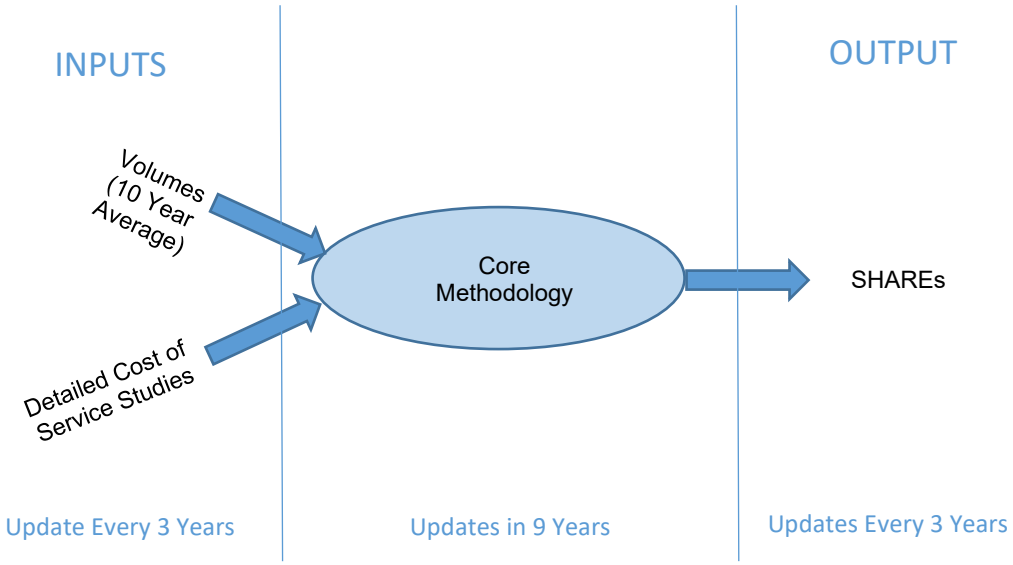

Figure 1 Components of Methodology

[2] Opening the core methodology for discussion before 9 years would be appropriate if there are material circumstances that suggest a change may be appropriate as identified by the One Water Partnership, GLWA Administration or the GLWA Board of Directors.

SIIMPLICITY IS KEY

At its most fundamental level, a cost methodology must be equitable and be perceived as equitable. When a methodology becomes so complex that it cannot be reasonably explained to those whom it affects, it may be perceived as inequitable. In the perspective of some, this is the case with the current methodology. We propose a methodology that greatly simplifies without compromising accuracy and equitability while continuing to embrace cost causation.

The simple proposed methodology:

- ✓ Moves us from using 18 allocators for both Capital and Operations and Maintenance, for a total of 36 allocators, to 3 allocators;
- ✓ Moves us from performing costly sampling studies and analyses, to using easily attainable and accurate estimates of sanitary volume to reflect the strength of the flow contributed. Such studies conducted since the last SHARE update totaled more than $700,000 in consulting and contractor costs; and
- ✓ Moves us from using complex and imprecise analytics, to a simple 50/50 split for non-sanitary flow elements in the D+ area[3].

The simple explanation of the proposed methodology is:

- ✓ Costs incurred to ***treat wastewater*** at the WRRF are allocated based on
  - 50% on average wastewater contribution, which reflects higher use during wet weather and also ties to the cost causation of moving flow through the WRRF, irrespective of the type of flow, and
  - 50% on sanitary flow contribution, which reflects strength of the wastewater and ties to the cost causation of treatment processes.
- ✓ Costs incurred to ***transport wastewater*** through the regional conveyance and collection system are proportioned by member partners' contributed average annual flows. Contributed volume ties to cost causation and long-term averages create charge stability.
- ✓ Costs incurred for ***regional wet weather facilities*** are proportioned 83% to Detroit and 17% to other member partners as previously negotiated and memorialized in legal documents.

[3] The D+, or Detroit Plus, area is comprised of Detroit and small portions of some of the surrounding communities whose sewer systems have many interconnections.

PRINCIPAL POINTS OF DISCUSSION

1. The D+, or Detroit Plus, area is comprised of Detroit and small portions of some of the surrounding communities (Highland Park, Hamtramck, City of Grosse Pointe, and portions of Redford Township, Harper Woods and Dearborn) whose sewer systems have many interconnections. The total volume of flow from this area is indirectly measured with meters via meter subtraction but in their totality, the flows are not directly quantified by individual community. The components of sanitary flows for this area are estimated using winter water use. Distinguishing between local and regional flow contributions is difficult because both regional and local pipes run through D+. After reviewing much data and considering the need for stability in charge methodology, a 50/50 split of contribution from regional and local systems was assumed for both dry weather inflow (DWII) and infiltration and wet weather. The 50/50 split of contribution from regional and local systems for DWII was informed by a body of work conducted by CDM Smith related to the flows in D+, which concluded that such factors are not able to be ascertained with a high level of precision and 50/50 was within the established error band. In contrast, the 50/50 split of contribution from regional and local systems for wet weather flow was an agreed upon compromise between the Think Tank Members because no studies were available to inform the decision. The wet weather 50/50 split was needed to provide the stability desired using the proposed core methodology. It should be noted, all sanitary flow from the D+ area will continue to be assigned to specific D+ communities.
2. The CSO cost pool and its allocation noted above, simply termed 83/17, were discussed in the Think Tank meetings. They are the result of a negotiated settlement between the regional system and its customers in the 1990s. Many member partners have their own CSO facilities, for which they pay 100% of costs. Due to it being memorialized in legal documents, 83/17 is likely unable to be changed without 100% concurrence of all member partners. It should be noted that what is in the 83/17 cost pool and the 83/17 allocation itself may be discussed in the future. This memo is not intended to support 83/17 or reinforce its validity.
3. Peak flow contributions were considered. The Group agreed that 83/17 contains an element of peak flow. There is no accurate quantifiable measure of peak flow for the D+ area and after discussion of possible approaches, further consideration of peak flow was set aside.
4. The allocation of costs for future Wastewater Master Plan projects and facilities was discussed. As initial thoughts were vetted, it became clear that the core methodology would need to be known to further coalesce around how costs for these facilities and projects should be allocated. As such, the determination of the cost allocation of these projects was not finalized and should be taken up soon and certainly before the next SHARE update.
5. The issue of affordability was commonly discussed by the Think Tank Group, however the Group did not take up the policy issue of affordability. Rather, affordability
    - was a key driver in the approach of the Wastewater Master Plan,
    - is a topic for policy makers such as GLWA's Board of Directors, and
    - is addressed in the context of permit renewals where updates to our assessment of financial capability are completed.

    Recently the Environmental Protection Agency proposed revisions to its financial capability assessment methodologies. As we engage in discussions around these proposed revisions, we are keeping a sharp eye on the how the language will affect our region's demonstrable financial capability.

PROPOSED SHAREs FOR THE NEXT SHARE PERIOD STARTING WITH FY 2022

Our proposed methodology, using an average of 7 years of flow volumes and applying the fiscal year 2021 cost of service study, yields the SHAREs summarized below. These SHAREs will be applied to the annual revenue requirements to determine charges for each member partner during this SHARE period. During the upcoming SHARE period, the annual percent change in all member partners' charges will be the same and equal to the change in the annual revenue requirement.

GLWA Wastewater Charge Methodology / SHAREs Development - Impact Summary

		Existing SHAREs				Proposed	Change in SHARE	
		CTA Treat / Collection Cost Pool (a)	CSO Facility Cost Pool	Suburban Only Cost Pool	"All in" SHARE (b)	"All in" SHARE (c)	Variance	% Variance
1	OMID	*16.436%*	*2.651%*	*22.182%*	*14.660%*	*14.589%*	*-0.071%*	*-0.5%*
2	Rouge Valley	*12.893%*	*2.956%*	*20.347%*	*11.682%*	*11.804%*	*0.122%*	*1.0%*
3	Oakland GWK	*10.735%*	*2.256%*	*18.625%*	*9.735%*	*9.788%*	*0.053%*	*0.5%*
4	Evergreen Farmington	*8.378%*	*1.485%*	*12.719%*	*7.521%*	*7.639%*	*0.118%*	*1.6%*
5	SE Macomb San Dist	*5.910%*	*1.174%*	*10.019%*	*5.345%*	*5.291%*	*-0.054%*	*-1.0%*
6	Dearborn	*4.518%*	*1.631%*	*8.048%*	*4.194%*	*4.284%*	*0.090%*	*2.1%*
7	Other "M" Customers	*2.126%*	*0.778%*	*3.517%*	*1.969%*	*1.965%*	*-0.003%*	*-0.2%*
8	M Customer Subtotal	*60.996%*	*12.931%*	*95.458%*	*55.106%*	*55.361%*	*0.255%*	*0.5%*
9	D+ Customers *(d)*	*39.004%*	*87.069%*	*4.542%*	*44.894%*	*44.639%*	*-0.255%*	*-0.6%*
10	Total	*100.000%*	*100.000%*	*100.000%*	*100.000%*	*100.000%*	*0.000%*	*0.0%*
	Other "M" Customer Detail							
11	*Grosse Pointe Farms*	*0.596%*	*0.504%*	*1.075%*	*0.593%*	*0.580%*	*-0.012%*	*-2.1%*
12	*Grosse Pointe Park*	*0.435%*	*0.062%*	*0.746%*	*0.390%*	*0.402%*	*0.012%*	*3.1%*
13	*Melvindale*	*0.367%*	*0.074%*	*0.569%*	*0.331%*	*0.332%*	*0.001%*	*0.4%*
14	*Farmington*	*0.275%*	*0.052%*	*0.445%*	*0.248%*	*0.253%*	*0.005%*	*1.9%*
15	*Center Line*	*0.247%*	*0.055%*	*0.368%*	*0.223%*	*0.220%*	*-0.003%*	*-1.6%*
16	*Allen Park*	*0.206%*	*0.031%*	*0.316%*	*0.184%*	*0.179%*	*-0.005%*	*-3.0%*

(a) The existing published **SHAREs** reflected proportional allocation factors for CTA revenue requirements excluding CSO and Suburban only costs.
(b) The effect of the prior methodology established "All in" **SHAREs** after recognizing the CSO and Suburban only cost pools.
(c) The proposed methodology establishes effective "All in" **SHAREs,** inclusive of all cost pools.
(d) The "unbundling" of proposed D+ SHAREs to individual communities remains under review.

It should be noted that increased flow for the cities of Grosse Pointe Park, Dearborn and Farmington, would have resulted in increases in SHAREs under ANY core methodology that includes flow volume, including the existing methodology. The increased flow contributions were discussed in 2020 Wastewater Analytics Task Force (WATF) meetings. In all cases, the community representatives agreed that the higher volumes were accurate.

Going forward, we intend to provide an annual update of flows in a format reflective of SHAREs impact, so that Member Partners have early warnings before they see a change due to flows when the inputs are updated again in three years.